

(12) AUSTRALIAN PETTY PATENT ABRIDGMENT

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(54) LAMINATED BUILDING MATERIAL, ESPECIALLY OF METAL AND WOOD SHEETING

(71) STEELFINNE FABRICATIONS PTY. LTD.

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(72) GLENN DICKSON AND COLIN WILSON

(74) CL

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(57) The claim defining the invention is as follows:

An improved structural material, said material being in the form of a laminate including: respective outer surface layers of a mild steel material having a relatively high resistance to impact; at least one internal layer of a metal, metallized material or alloy other than mild steel interposed between said surface layers; and at least two juxtaposed layers of an organic material interposed between adjacent pairs of said surface layers and between or each said internal layer.

Claim

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FORM 10A

Sub-Regulation 13(3)

COMMONWEALTH OF AUSTRALIA

The Patents Act 1952

PETTY PATENT SPECIFICATION FOR THE INVENTION ENTITLED:

"IMPROVEMENTS IN MATERIALS FOR BUILDING"

This invention is described in the following statement:.

The present invention relates to improvements in building materials and more particularly, but not exclusively, relates to an improved form of building material for use in contexts or structures wherein strength and security requirements are pre-eminent. An example of such structures is a prison, a detention centre or the like. For ease of explanation, in the ensuing description reference will be made to utilisation of the subject material for the construction of walls etc. in buildings such as prisons, detention centres and the like. It should be understood, however, that the building material in accordance with the present invention is not to be considered to be limited solely to such usage.

15                In prisons, detention centres and the like there can be expected to be added constraints placed on the type of material employed for construction by virtue of the requirements for increased strength, security etc. In a more practical sense, it would be a ludicrous situation to provide a prison structure including steel doors etc. keyed into or disposed on or in relation to walls etc. which are not of comparable strength. The building material in accordance with the present invention is designed particularly for use in the manufacture or creation of partition walls etc. for use in security situations.

In the past, partition walls and the like for use in prisons, detention centres etc. have generally been constructed of reinforced concrete and the like material. Such materials suffer by reason of their bulk, weight, cost, lack of real workability, etc. The present invention seeks to provide an improvement over the prior art by providing an alternative form of building material which is lighter and yet of a comparable, if not better strength, is more economical in construction, more workable in a practical sense and hence overall provides greater flexibility or adaptability in use.

~~In accordance with the present invention, there-~~  
fore, there is provided an improved material for building, said material being in the form of a laminate including: outer surface layers of a material having a relatively high (substantial) resistance to impact, for example mild steel or the like; at least one inner layer of a metal or metallized material or an alloy, for example aluminium or the like material; and at least two juxtaposed layers of timber or other organic material interposed between each surface layer and the adjacent layer of said metal or metallized material.

In order that the invention may be more clearly understood and put into practical effect there shall now be described in detail a preferred embodiment of a building material in accordance with the invention.



In accordance with the present invention, therefore, there is provided an improved structural material, said material being in the form of a laminate including: respective outer surface layers of a mild steel material having a relatively high resistance to impact; at least one internal layer of a metal, metallized material or alloy other than mild steel interposed between said surface layers; and at least two juxtaposed layers of an organic material interposed between adjacent pairs of said surface layers and the or each said internal layer.

In order that the invention may be more clearly understood and put into practical effect there shall now be described in detail a preferred embodiment of a building material in accordance with the invention.



The ensuing description is given by way of non-limitative example only and is with reference to the accompanying drawings, wherein:

FIG. 1 is a side elevational view of a material  
5 in accordance with the invention; and

FIG. 2 is an exploded view of the material of  
FIG. 1.

As illustrated a building material in accordance with the present invention is in the form of a laminate, with the various plies or layers making up the laminate  
10 being bonded together in any known manner. In a preferred embodiment such bonding is achieved by the use of a heat-bonded malleable adhesive. It should be understood, however, that any number of adhesives may  
15 be equally capable of being employed and give rise to a satisfactory result.

As illustrated the preferred embodiment of a building material in accordance with the present invention includes some thirteen separate plies. The illustrated embodiment includes two external plies or laminates 1 constructed from galvanized mild steel (or the  
20 like or equivalent material) sheet, preferably at least one millimetre thick. The laminate further includes at least two sheets or layers 2, preferably of aluminium, located internally of the external mild steel sheets 1.  
25 Interposed between the metal layers 1-2, 2-2 and 2-1

are at least three separate plies or layers 3 of a  
timber material, with adjacent layers 3 of such timber  
material being bonded across the grain (as illustrated)  
whereby to afford additional strength to the multi-ply  
5 structure thus created. In an especially preferred  
embodiment the timber material will be Fll Queensland  
Maple. In a practical sense, however, it should be  
understood that any suitable hard-grained timber mater-  
ial would be equally appropriate for use. In an alter-  
10 native embodiment, perhaps even a suitable hard plastics  
material may be substituted for the timber material.  
It should furthermore be understood that, preferably,  
a suitable fire retardant will be incorporated in or  
with the timber material.

15 The laminate thus created has been found experi-  
mentally to be extremely satisfactory in terms of  
strength capability (and hence security), is much  
lighter than conventionally employed reinforced concrete  
material, lends itself to utilisation in a variety of  
20 contexts and environments, and is overall less expensive  
than previously employed materials. A laminate building  
material in accordance with the present invention can be  
cut and/or shaped to suit any desired building config-  
uration, with little if any reduction in overall  
25 strength.

Insofar as the various plies 1, 2 and 3 making up the subject laminate are concerned, it should be understood that the actual thickness of such plies does not constitute a part of the invention. Indeed, in a practical sense the thickness of the plies may well be varied to suit differing requirements of cost, workability, overall weight, strength, security etc.

The external steel (or other heavy duty metal) layers afford the laminate with an increased resistance to damage (as by penetration) by sharp instruments. The inner aluminium plies or layers act to provide the laminate with an inherent resistance to destruction by sawing or the like. Indeed, the aluminium layer or layers will have a tendency to blunt any saw-toothed instrument or cutting means which comes into contact therewith.

Finally, it is to be understood that the foregoing description refers merely to preferred embodiments of the present invention and that variations and modifications are possible thereto without departing from the spirit and scope of the invention, the ambit of which is to be determined from the following claim.



The claim defining the invention is as follows:

An improved structural material, said material being in the form of a laminate including: respective outer surface layers of a mild steel material having a relatively high resistance to impact; at least one internal layer of a metal, metallized material or alloy other than mild steel interposed between said surface layers; and at least two juxtaposed layers of an organic material interposed between adjacent pairs of said surface layers and the or each said internal layer.

D A T E D        this        27th        day        of        March,        1986.

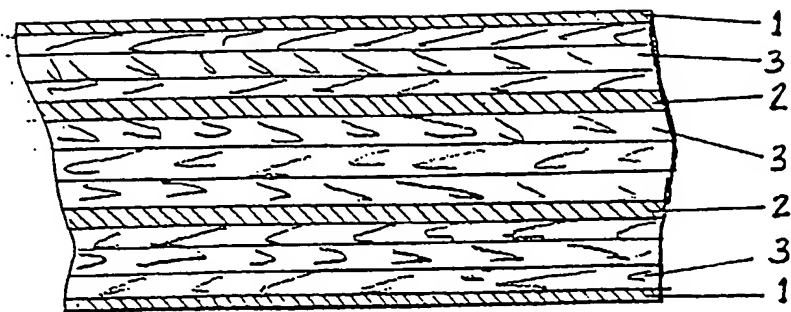
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By their Patent Attorneys:

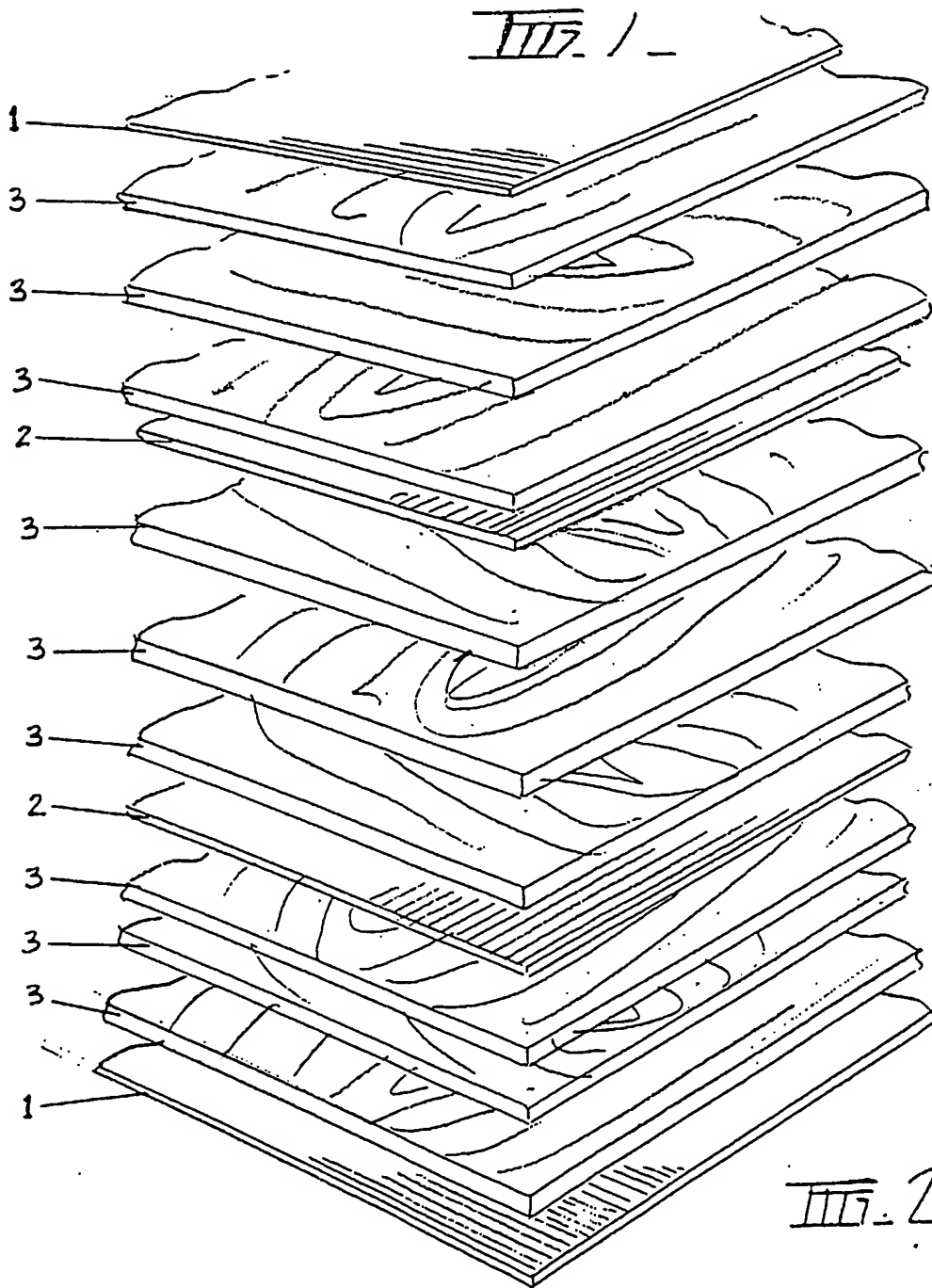
CALLINAN AND ASSOCIATES.

To:        The Commissioner of Patents.





III. 1 -



III. 2 -